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Scaling up integrated primary mental health in six low-and-middle income countries: obstacles, synergies and implications for systems reform

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Abstract

Background: There is a global drive to improve access to mental health care by scaling up integrated mental health into primary healthcare (PHC) systems in low-and-middle income countries (LMICs).

Aims: To investigate systems level implications of efforts to scale up integrated mental health care into PHC in districts in six LMICs.

Method: Semi-structured interviews were conducted with 121 managers and service providers. Transcribed interviews were analysed using framework analysis guided by the Consolidated Framework for Implementation Research (CFIR) and World Health Organization basic building blocks.

Results: Ensuring that interventions are synergistic with existing health system features and strengthening of the health care system building blocks to support integrated chronic care and task sharing were identified as aiding integration efforts. The latter includes i) strengthening governance to include technical support for integration efforts as well as multi-sectoral collaborations; iii) ring-fencing mental health budgets at district level; iii) a critical mass of mental health specialists to support task sharing; iv) including key mental health indicators in the health information system; v) psychotropic medication are included on free essential drug lists and vi) enabling collaborative and community oriented primary health care service delivery platforms and continuous quality improvement to aid service delivery challenges in implementation.

Conclusions: Scaling up integrated mental health care in PHC in LMICs is more complex than training general health care providers. Leveraging existing health system processes that are synergistic with chronic care and strengthening health care system building blocks to provide a more enabling context for integration are important.

Introduction

The past decade has seen substantial advances in building the evidence base for the effectiveness of task sharing interventions to close the treatment gap for mental disorders in low-and-middle income countries (LMICs). The World Health Organization's (WHO) Mental Health Gap Action Programme (mhGAP), now in over 100 countries (1), and Disease Control Priorities for mental, neurological and substance use disorders (2), have played a leading role in these endeavours. In addition, there have been a number of trials on task sharing of psychosocial interventions to non-specialist health workers in middle-income countries and, to a lesser extent, in low-income countries (3). Scaling up of these interventions – most prominently, the integration of mental health into primary healthcare (PHC) in real world settings – is the next frontier. The challenge in expanding access to care is therefore less about *what* to implement, but more about *how* to implement at scale (4). Implementation research is a critical vehicle to understand challenges and processes impacting on the scalability of integration packages of care in real world settings.

This paper reports on findings from the Emerald (Emerging mental health systems in low- and middle-income countries) research consortium, involving six low- and middle-income countries in sub-Saharan Africa and South East Asia (Ethiopia, India, Nepal, Nigeria, South Africa and Uganda) focused on examining health system strengthening needed to support integrated mental health care (5). The specific aim of this study was to investigate the obstacles, synergies and implications of efforts to scale up integrated mental health into PHC in district sites in these LMICs. In Nigeria, these integration scale-up efforts were undertaken through a project involving training of primary care providers in the Mental Health Gap Action Programme (mhGAP) Intervention Guide. In the remaining countries the scale up efforts were through the PRIME (Programme for Improving Mental health care) research consortium which aimed to develop, implement, evaluate and scale-up integrated packages of care for priority mental disorders (4).

Methods

Settings

The characteristics of the six countries has been described elsewhere and summarized in table 1 (6). There is wide variation in terms of size, gross domestic income and human development, although there are similarities in terms of governance systems (all countries are democratic republics). None of the countries had a dedicated mental health budget, with South Africa, being an upper middle income country, having the most mental health resources per 100 000 population (6).

Intervention characteristics

All 6 countries were engaged collaboratively with the respective Ministries of Health in interventions to integrate mental health into primary health care at district level. The main vehicle for integration was training of general primary health care providers in the Mental Health Gap Intervention Guide (mhGAP-IG), or adapted versions of mhGAP-IG (7). The mhGAP-IG provides guidelines for the identification and management of mental, neurological and substance use (MNS) disorders, including the initiation of psychotropic medication as well as evidence-based psychosocial interventions such as cognitive-behavioural therapy/interpersonal therapy for depression and brief motivational interviewing for substance use disorders in non-specialist health settings. The countries involved in the Emerald study focused on the following priority disorders: depression, alcohol use disorder (AUD), severe mental disorders and epilepsy. There was variation across the country sites in relation to: i) the priority disorders included in the integration efforts; ii) whether psychosocial counselling was included in the packages; iii) whether the integration efforts extended beyond the facility level of care to the community; and iv) whether additional training elements for service providers, such as clinical communication skills or anti-stigma programmes, were included in the package. Specific details of the country integration packages are summarized in table one below and have been published elsewhere (4, 8).

(Table 1 about here)

Study design

The study used a cross-sectional qualitative research design, conducting semi-structured interviews with informant interviews in the respective study sites to understand the obstacles, synergies and implications of efforts to scale-up a model of mental health care integrated into PHC. The theoretical constructs of the Consolidated Framework for Implementation Research (CFIR) framework supplemented by the WHO health systems building blocks were used to guide the analysis (9). CFIR is an overarching typology designed to promote the development and verification of implementation theory towards better understanding "what works where and why across multiple contexts" (10). CFIR provides a group of constructs (outer setting, inner setting, individuals, characteristics of the intervention and process) that are particularly well-geared towards systematically assessing potential barriers and facilitators associated with an intervention in real-life contexts (see online Supplemental File 1).

The six World Health Organization (WHO) health systems building blocks (service delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance) (9), were nested within the CFIR framework to ensure that all the essential elements of a health system were interrogated in relation to how they should be strengthened to facilitate integrated mental health care, particularly within the outer and inner settings of the CFIR framework.

Participant selection and data gathering

Semi-structured qualitative interviews were conducted with provincial managers, district managers, facility managers and service providers in the six participating countries. The number and category of key stakeholders interviewed varied across countries. Face-to-face interviews with key stakeholders were conducted between May and September 2017 across the six countries following implementation

of integrated packaged of care in the six country district sites. A total of 121 interviews were conducted. Table 2 below presents the number of interviews conducted per country.

(Table 2 about here)

A generic semi-structured interview guide was developed by the research team that was adapted for each country context. Guided by the World Health Organization (WHO building blocks), it covered systems level barriers and facilitating factors as well as implications of integrated mental health care as they pertained to the six building blocks (see Online Supplemental File 2 for the interview schedule). Examples of governance and finance questions included the impact of centralized/decentralized governance structures on implementation of national policies embracing integration; inter-sectoral collaboration and community participation; as well as budgetary allocations to mental health and ring fencing of the mental health budget at PHC level. In relation to human resources, issues related to specialist staff availability and willingness to provide ongoing training and supervision within a task sharing approach were explored; as well as the impact of integration on generalist staff; and the stability of lay counsellor cadres, where they existed. Pertaining to medicines, equipment and infrastructure, the availability and supply of psychotropic medication was explored; as well as infrastructure for the provision of mental health care at PHC, especially counselling space. Concerning information systems for integrated mental health, questions related particularly to mental health indicators at PHC level, as well as data quality. Questions relating to health systems processes that enabled integration included strengthening of referral systems; processes for tracing of non-adherent service users; as well as shifts towards person-centred care. Trained researchers conducted audio recorded interviews with the participants in English or the local language.

Data analysis

For data analysis, the study employed framework analysis. It is commonly used for health policy research as well as for multi-site studies which have specific questions, a pre-determined participant selection frame and a common set of *a priori* concerns being investigated (11). Analysis involves

identifying commonalities and differences in the data, followed by interrogating relationships in the data, leading to descriptive or explanatory conclusions drawn around specific themes (11). Seven stages were followed (11): i) translating data into English where necessary, and transcribing the audio recordings into word processing software; ii) familiarisation with the transcripts; iii) initial coding of at least three transcripts; iv) developing a working analytic framework which involved adopting the CFIR framework as *a priori* overarching themes in the framework matrix; v) applying the analytic framework through coding of the transcripts; vi) charting the coded transcripts into the framework matrix through summarizing the coded data; and vii) interpretation of the data. Analysis was facilitated using NVivo data management software v. 11.

Ethical considerations

Prior to each interview, an informed consent form translated to the appropriate local language was read out to the participants. Once the participants understood the consent form and agreed to participate, they signed it and were interviewed individually.

Permission to conduct the interviews was obtained from the relevant health administrative levels for each country (Institutional Review Board of the College of Health Sciences, Addis Ababa University, Ref. 074/13/Psy; Public Health Foundation of India, Delhi. TRC-IEC 202.1/13; Nepal Health Research Council, Reference number 198/2015; Joint UI/UCH Ethics Committee [Nigeria]; Biomedical Research Ethics Committee, University of KwaZulu-Natal, BE407/13 [South Africa], Makerere University School of Medicine Research Ethics Committee, REC REF No. 2013-143 [Uganda]).

Results

The detailed findings according to the CFIR constructs and sub-constructs are presented in the Online Supplemental File 3. They are described below according to the overarching CFIR constructs and nested WHO building blocks and summarized in Figure 1

INSERT FIGURE 1

Intervention Characteristics

Integration of mental health care into PHC platforms in collaboration with the research teams was perceived as beneficial for improving access to mental health care across the country contexts. In particular, the technical intervention guides and manuals developed were perceived to be significant primers for change:

> "*it (the guidelines) gives you everything, the details. You are not being afraid to diagnose and refer because it is clear*" (FM 1, South Africa).

The interventions were regarded as being contextually appropriate across the board. This was attributed to the intensive collaborative process undertaken during the formative phase, including with health ministers. This process helped ensure that the respective intervention packages were co-designed and synergistic with existing health system features and optimized the potential to strengthen existing health system structures, service delivery mechanisms, and processes to absorb integrated mental health care. For instance, while guidelines were suggested to be beneficial, being aligned with other existing guidelines and existing training processes helped improve goodness of fit of the innovation. Examples include strengthening of the mental health components of existing Adult Primary Care (APC) integrated chronic care guidelines in South Africa; subsuming the mhGAP intervention guidelines in Nigeria with existing Standing Orders, a set of broader guidelines for use by primary health care providers (8); strengthening existing referral pathways from primary to upper levels of care to include referral of mental disorders in Nigeria; mirroring a registration book used for follow-up care of patients with HIV or tuberculosis for tracking of mental health service users (MHSU) in need of ongoing follow-up in Ethiopia; and leveraging many chronic care systems processes of the Integrated Clinical Services Management (ICSM), an initiative to promote integrated chronic care (12) in South Africa, including community health worker ward based outreach teams for tracing non-adherent MHSU and a chronic care dispensing medication system.

Outer Setting

Across all six countries, the findings confirmed the need for strengthening of the basic building blocks of the health care system at a policy level to promote integration. In relation to governance, the need for policies to strengthen multisectoral linkages in the planning, implementation and monitoring of services was emphasized. Further, the need for technical support to assist with implementation of integration policies was also emphasized. The Transcultural Psychosocial Organization (TPO) in Nepal provided an example of how an externally funded organization could assist in providing training and human resource support for integration efforts. Improved financing of integrated mental health care also emerged as a crucial issue, with the need for a dedicated mental health budget at PHC level identified as an unresolved policy need across all the countries. In Nepal, this was underlined as follows:

> "*The responsibility should be taken by the government. Only some kind of help can be taken from the donors. Government should not act like a parasite by not doing anything and simply depending on foreign donors. If we always depend on foreign donors, … once it takes off its helping hand from us, we will be destroyed…*" (HW1, Nepal)

Positive developments in relation to financing that were reported during the course of the PRIME project included the introduction of health insurance for the vulnerable in Ethiopia, which reportedly helped improve access to mental health care. In relation to medical products and technologies, policy changes to ensure that psychotropic medications were included on the free essential drug list were identified as essential. This materialized during the course of the PRIME project in Nepal, and was reported to improve access to treatment. With respect to the health information system, the need for policy changes to include/strengthen mental health indicators as part of the health information system was common across all the country sites. Regarding service delivery, systems re-engineering for integrated chronic care management was identified as important to enable integrated mental

health care. The need for improved supply chain management for chronic medication delivery, with drug stock outs impeding continuity of medication management in Uganda, Nigeria and Nepal exemplifies this.

> *"The most challenge is drug stock out [sic] especially Carbamazapine. Since last year, they have not been supplying Carbamazapine." FM2, Uganda)*

In respect of 'people' who are often cited as the seventh building block of the health care system (13) and refer to individuals, households and communities; being caught in the poverty-mental ill-health cycle as well as stigma were reported to impede access to care and recovery. Policy interventions beyond the health sector are required to address this barrier, for example, population level mental health literacy campaigns as well as social welfare and income generation initiatives to combat poverty. The need for inter-sectoral governance action in the outer setting is thus highlighted. As illustrated by one participant,

> "*Mental health problem is economic problem (sic), it is a social problem and it is a health problem. If we try to solve the health problem who is going to solve the economic problem, who is going to solve the social problem?*" (DM2, Ethiopia).

<u>Inner Setting</u>

Weaknesses in the service delivery building block played out mostly in the inner setting. In relation to infrastructure to deliver mental health services at PHC level, the lack of adequate and private spaces in health facilities for mental health consultations was highlighted across the countries, with the exception of India, where all assessments and psychosocial interventions were delivered in a separate consultation room ("*Mann kaksha*"). Further, while most country participants reported relatively acceptable internal relationships and communications at the PHC level (for instance between community health workers [CHWs] and nurses in South Africa; between prescribers and non-prescribers in Nepal; and between nurses and psychiatrists in India), weak feedback systems between

secondary and primary levels of care were reported to impair continuity of care at PHC level, particularly in South Africa.

In terms of organisational culture, a hierarchical culture, characterized by internal maintenance with a need for stability and control, was especially dominant across most of the countries. While it promoted control and standardisation in the provisioning of mental health care, it precluded the flexibility often required to deal with health system challenges at the coalface. "*Paper-based leadership*" was identified in South Africa, Nigeria and Uganda, where upper management levels led by developing and distributing policies and plans, with little guidance given to health facilities on implementation:

> "*I have not been seeing the district supervising. I think the support… that we are seeing is by you people of the project and the [manager] from [referral hospital]. The district doesn't seem to be very serious on that matter*" (FM2, Uganda).

This hierarchical "paper based" leadership not only resulted in a paucity of technical support needed for implementation of integrated care but was also antagonistic to the promotion of the containing

environment needed to support co-workers and managers to share work-related emotional burdens. In South Africa, participants reported feeling powerless to solve emergent health system challenges brought about by integrated care and further reported little support for occupational emotional burdens. Greater flexibility and participation of staff in resolving challenges and obtaining support appeared to be more evident in Nepal where it was reported that frequent facility meetings were held - where anybody could participate and voice their opinions – highlighting the value of transformative leadership styles in enabling resolution of problems and coordination of services.

> "*We get voluntarily involved in [facility] meeting [sic]... Whenever they [managers] come to the health facility, we… ask them to let us know if there is any problem in the field… Because of all this there has been good coordination*." (HW1, Nepal)

A poor implementation climate also emerged as impeding service delivery. This was particularly the case in South Africa, where concurrent implementation of multiple interventions of different scope,

size and quality led to reports of PHC staff feeling overwhelmed by so many changes in work routines, resulting in challenges in obtaining their buy-in to integrated mental health care.

Organisational incentives and rewards that were found to promote service delivery in relation to integrated care included training and specialist support from the PRIME teams, particularly in India and Nepal. The potential of the integration packages to provide human rights-based mental health care was viewed as rewarding in Ethiopia, while the integrated guidelines to simplify comprehensive care, make patient flow more efficient and strengthening of referral pathways, particularly to facility-based counsellors was highlighted in South Africa. At the time of the interviews, none of the countries were employing data driven continuous quality improvement to incentivize implementation of integrated care, with any data collected being sent upwards within the governance structures and very little feedback. Voluntary facility meetings in Nepal and compulsory meetings in Nigeria, however, created a platform for sharing information and promoting a learning climate.

Characteristics of Individuals

Across all the study sites, improved self-efficacy on the part of PHC providers to deal with patients with mental disorders as a result of the interventions was reported. Notwithstanding this, there were, however, indications of stigmatising attitudes and behaviours of health workers towards people with mental disorders across all sites, exemplified by one participant referring to MHSU as "*lunatics and mentally derailed people*" (HM1, Nigeria). Further, there were reports that integrated mental health care was regarded as burdensome to work routines; highlighting the need for change management to orientate health care staff to integrated mental health and the benefits it would bring to MHSU and providers. Others offered a more positive view:

"*It should not be taken as a burden. …if a farmer who is doing agriculture feels burdened to plough the field and manure the soil, then there won't be much yielding of his harvest. Likewise, health workers like us should not feel burdened even if we have to work little harder*" (FM1, Nepal).

Regarding attitudes towards task-sharing – a central strategy in integrated mental health care – some participants highlighted that some cadres of health worker still shunned working with patients with mental illness, even after training. This was especially the case for general practitioners, particularly in Uganda, India and Nigeria. This was illustrated by a manager based in Uganda:

"*The major problem we still have is that health workers tend to think mental illness should be handled by a Psychiatric Clinical Officer or Psychiatric Nurse. So, even if they have been trained and we assume they have the knowledge, they fail to attend to the patients*" (M1, Uganda).

While mental health specialist cadres were generally supportive of task-sharing, their low numbers relative to the mental health needs in communities constrained the time and effort they could spend supporting non-specialist health workers in facilities.

Process

In terms of processes of engagement, the collaborative approach with health ministry stakeholders from national to local level across all the country sites was highlighted as crucial for buy-in. In particular, facility managers were identified as important to champion integration at the coalface given their influential role over frontline workers. The importance of a change agent, in this case the technical support provided by PRIME and Nigerian mhGAP programmes, was again emphasized to drive the process of integration; as well as the need for continuous quality improvement – which engages key staff with emerging challenges and empowers them to make the necessary changes to the system to accommodate the intervention:

"*…of course we have been facilitated very well by PRIME project, which has help us in many things*" HM2, India)

Discussion

The evidence base for the integration of mental health care into PHC systems of LMICs is growing rapidly (4), influenced by the Movement for Global Mental Health and a more favourable global political climate for reform (14). There is a groundswell of support emerging particularly from the increasing recognition of the role played by mental health in the achievement of the Sustainable Development Goals (SDGs) (15). The findings from this study highlight health system synergies and obstacles that aided or stymied ongoing mental health care integration efforts at district level in six LMICs as well as implications for systems strengthening required to facilitate integration.

The goals of integrated mental health care – providing accessible, cost-effective, quality and effective mental health services to (especially) poor and disadvantaged populations – so as to break the mental ill-health and poverty cycle (16) received support across the board. Leveraging existing health system features and processes promoted greater synergy with the prevailing health system. A good degree of compatibility between intervention characteristics and existing policies and guidelines is a vital mechanism in health system implementation processes (17). In addition, practical implementation plans that take into account available resources is globally recognized as key to effective community mental health care provision (18). However, LMIC primary care systems, that have historically been developed for episodic and acute care needs, pose a challenge for integrated mental health care, which requires systems to be aligned for both acute episodes and chronic care (14). The findings of this study illustrate how existing features characteristic of chronic care systems were reportedly enabling of integration efforts. Examples include established referral pathways between PHC-level facilities and other levels of care (Nigeria), CHW outreach teams, integrated chronic care guidelines

(South Africa), a chronic medication dispensing system (South Africa), intersectoral collaborations (Nepal) and existing systems for tracking patients lost to care (Ethiopia).

Several health system obstacles influenced integrated mental health care and strengthening of the basic building blocks of the health care system in these six LMICs emerged as important to create a more enabling platform for integrated care. In relation to governance, breaking the mental ill-health and poverty cycle in LMICs requires a multi-sectoral effort; specifically, there is a need to mobilise resources outside the formal sphere of health systems to provide technical support should there be insufficient internal resources. Providing collaborative care through accessing the human capital offered by NGOs or other non-profit, community-based organisations (19) should be considered and is aligned with the chronic care model. The effectiveness of integrated care packages is heavily influenced by fragmented collaboration across sectors, particularly social welfare and development (although collaboration with housing, education and justice departments all play vital roles) and applies equally to high-income settings (18). Resource constraints are a persisting feature of health systems in LMICs, and the picture in the six target countries was not different. This makes strategic resource use and multi-sectoral resource mobilisation all the more important. The findings of this study support the full "horizontal" integration of mental health into existing (largely primary care) systems. Yet some injection of "vertical" resources in the form of specialists who offer training, ongoing supervision and support, together with the requisite ring-fenced mental health budgets, emerged as essential. Further, the need for dedicated mental health champions was highlighted. The fact that this was not always evident and at times compromised in favour of other priorities speaks to the lack of dedicated, ring-fenced budgets for mental health – a crucial mechanism for stability and prioritisation (20). Importantly, budgets should be structured to trickle downward from national level, to local governance levels, to health facilities, following mental health service users into communities, as has been recommended globally and where investment pay-off is greatest (18).

The mental health information system emerged as particularly under-developed across the six countries. There was an identified need to include some essential mental health indicators in the national health information system that can assist in monitoring quality of care (21). Further, the need for data to not only flow to central government databanks, but to be used to provide regular feedback to local managers and health facilities for continuous quality improvement (CQI) emerged as important. When routine mental health care indicators are not collected, there may be little incentive or motivation for busy frontline health workers to actively screen and identify common mental disorders – and offer treatment. Within quality improvement initiatives, improved health information systems have the potential to assist to promote uptake and embedding of a new intervention through assisting with change management through a process of creating "will" to identify and find solutions to bottlenecks that emerge during service delivery - which is to be expected during the introduction of systems innovations (22). The use of CQI to improve the coverage of prevention of mother-to-child transmission of HIV (PMTCT) in South Africa serves as an exemplar of the change management potential of this approach (23).

Persistent shortages in specialist human resources for mental health emerged as an enduring theme. Given financial constraints on the budget – against the backdrop of a substantial disease burden of mental disorders (24) – scaling up of mental health through integration into PHC and task-sharing remains the only option to narrow the treatment gap (25, 26). Respondents across all country sites favoured task-sharing where it was utilized as a strategy to promote integrated care. It has been shown to be cost-effective and efficient in increasing access to care for other conditions at PHC level, such as tuberculosis and HIV (25). However, a critical mass of specialist human resources is required to provide supervision and support. Task sharing included sharing of specialist tasks with CHWs across all the country sites. There is international evidence that with adequate training and support this level of worker can successfully be used to help screen and identify people with mental disorders, as well as deliver certain evidence based psychosocial counselling interventions (20) (26). Nonetheless, we

should proceed with caution, as CHWs can very easily become overburdened in similar ways to PHC-level health workers, especially in settings with substantial burdens of disease. Governing and supporting the tasks of CHWs strategically is key.

Some limitations should be considered. The study does not include the voices of mental health service users, their families and caretakers, nor service providers operating outside the ministries of health - such as community-based organisations. To create a degree of standardisation for the analysis of the interviews, they had to be translated into English where necessary. It might be possible that some of the context was lost during this process, although the close involvement of respective country partners during transcription and translation processes somewhat reduced this risk.

To conclude, the findings of this study indicate that the scale-up of integrated mental health care into PHC in LMICs is complex, requiring more than just training of existing primary health care providers, historically the approach taken to integrate mental health care. The need to strengthen the basic building blocks of the health care system to create a more enabling platform for integrated mental health care emerged as paramount for successful integration. In light of the changing disease burden from predominantly acute conditions towards greater numbers of chronic conditions, health care systems in LMICs are increasingly engaging in health care system redesign from vertical programming for acute conditions, towards the provision of integrated chronic care. These health system reforms should provide a more enabling platform that can be leveraged for the integration of mental health care. Advocates of global mental health should take heed of the need for these broader health system reforms to create an enabling context for integrated mental health care. There needs to be a balance between the focus on mental health only, with the need for integrated care as a whole so as not to have the unintended consequence of reinforcing vertical programming for mental health.

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Table 1: Intervention characteristics of integration packages across country sites

Country & Salient Features	Description of intervention
Ethiopia Population: 94 million HDI*: 0.448 MH§ as a % of national health budget: 0.9% Psychiatrists/100 000 population: 0.58 Psychiatric beds/100 000 population: 0.06	The Ethiopia PRIME intervention in the scale-up site comprised mhGAP training for primary health care workers (nurses and health officers), establishing a zonal advisory board with designated mental health co-ordinators in each district and ensured supply of psychotropic medication, technical support from the PRIME team and regular clinical supervision by a psychiatric nurse. A registration book was introduced to allow routine information monitoring and facilitate detection of drop out from care and initiation of outreach by community health extension workers.
India Population: 1.3 billion HDI: 0.624 MH as a % of national health budget: 0.06% Psychiatrists/100 000 population: 0.07 Psychiatric beds/100 000 population: 1.46	In India, the PRIME intervention in the scale-up sites comprised mhGAP training for medical officers in community health centres (CHCs) and civil hospitals to deliver pharmacological treatment. Nurses were trained to screen and provide psychosocial intervention packages including Healthy Activity Program (HAP) for depression, Counselling for Alcohol Problem (CAP) and Psycho-education for psychosis. The health management information system (HMIS) system in the PRIME implementation sites was also adapted for the scale up sites. The PRIME team provided technical support and supervision to the scale up phase.
Nepal Population: 28.4 million HDI: 0.558 MH as a % of national health budget: 0.17 Psychiatrists/100 000 population: 0.13 Psychiatric beds/100 000 population: 1.0	The Nepal PRIME intervention in the scale-up site included mhGAP training for prescribers (health assistants and medical officers) and psychosocial support along with the Healthy Activity Program (HAP) and Counselling for Alcohol Problems (CAP) program for non-prescribers (Auxiliary Nurses and Mid-wives). The female community health volunteers (FCHVs) received training on Community Informant Detection Tool (CIDT) and Home-Based Care. The PRIME intervention followed a district mental health care plan at three levels. At community level, a community awareness program was conducted by FCHVs and Psychosocial counsellors, case detection and referral to health facilities along with follow-up and home-based care was also conducted by FCHVs. At the health facilities level, the prescribers trained in mhGAP provided medical treatments and non-prescribers provided emotional/psychosocial support along with HAP and CAP counselling. A psychiatrist from the district hospital provided supervision to the prescribers and was also the point of referral. Supervision to non-prescribers and a referral counselling service was provided by psychosocial counsellors of TPO Nepal.
Nigeria Population: 180 million HDI: 0.527 MH as a % of national health budget: 3.3 Psychiatrists/100 000 population: 0.1 Psychiatric beds/100 000 population: 1.3	In Nigeria, mhGAP-IG training was conducted for all the community health workers (consisting of nurses, community health officers, and community health extension workers) in the intervention PHCs. Engagement and intervention procedure workshops were held with the facility managers and supervisory physicians. The training and workshops focused on identification, treatment (especially psychosocial treatment), and effective use of established referral pathways. Advocacy activities and meetings were conducted with senior policy makers, in particular with the Director of the Oyo State Primary Health Care Board to facilitate the cooperation of the frontline clinical staff and also to ensure that trained staff were not transferred away. The HMIS system was also improved through the collection of additional information that was fed into the HMIS of the state.
South Africa Population: 55 million HDI: 0.666 MH as a % of national health budget: 4.0 Psychiatrists/100 000 population: 0.28 Psychiatric beds/100 000 population: 18.0	In South Africa, the PRIME scale-up package comprised the introduction of a collaborative stepped care package for chronic care patients with comorbid common mental disorders. Training of PHC nurses in identification of CMDs was enhanced through the addition of a mental health module using mhGAP guidelines to the standard Department of Health training in integrated chronic care guidelines called Adult Primary Care (APC). Referral pathways were also strengthened; with facility based lay counsellors trained to provide manualized counselling for chronic patients with mild to moderate depressive symptoms; and doctors oriented to the need to provide medication for those with moderate severe depression. A task shared community-based psychosocial rehabilitation programme facilitated by auxiliary social workers was also introduced for stabilised mental health service users with schizophrenia receiving ongoing medication for symptom management from the PHC facilities.
Uganda Population: 34.6 million HDI: 0.493	The PRIME scale-up intervention in Uganda implemented packages aimed at governance, health facility and community levels. At the governance level, the PRIME team engaged the health managers to ensure buy-in so as to support the integration programme. They were sensitised to mobilise the necessary human and financial resources. At the health facility level,

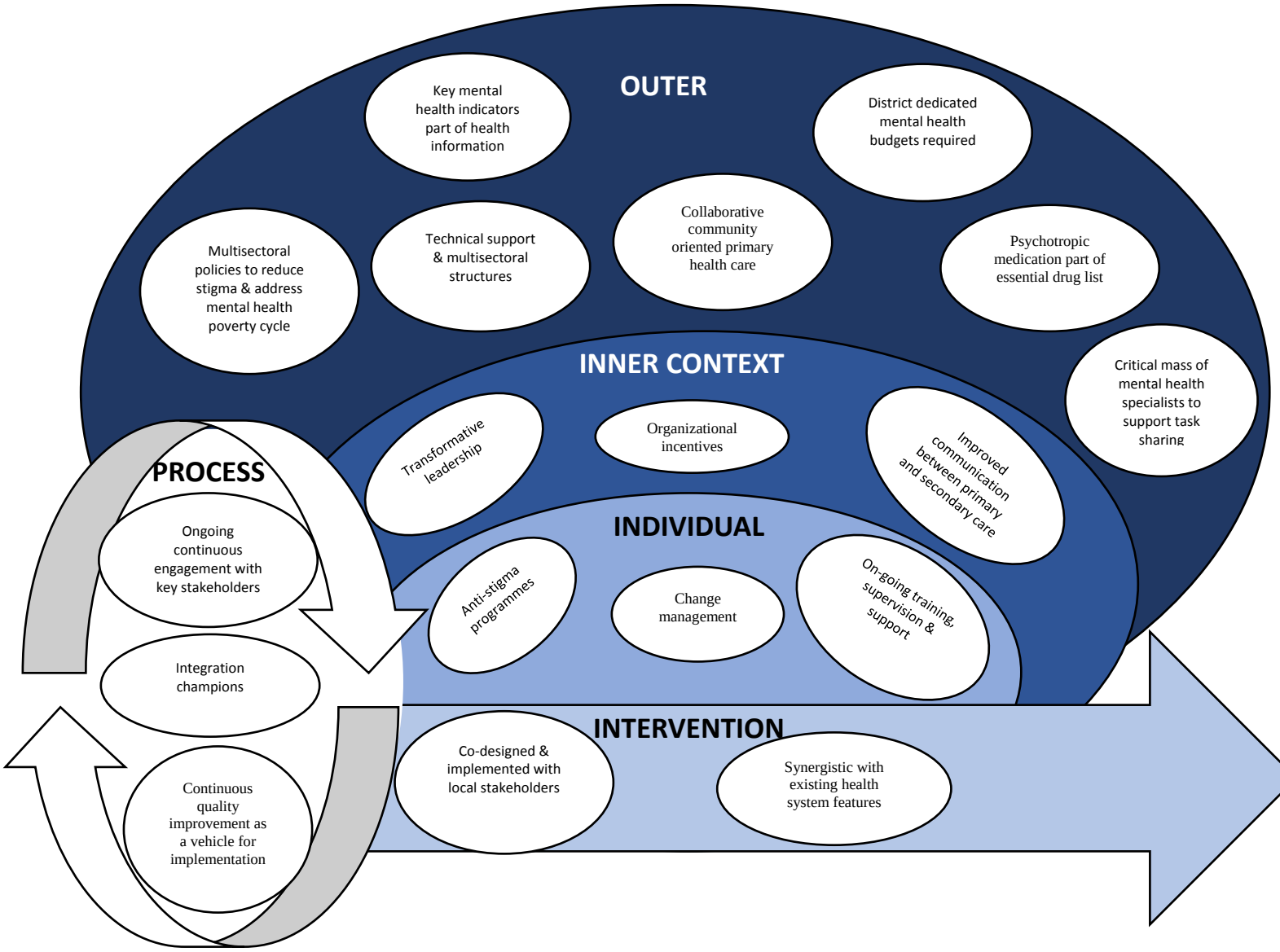
MH as a % of national health budget: 0.9 Psychiatrists/100 000 population: 0.09 Psychiatric beds/100 000 population: 2.77	the PRIME team together with the national mhGAP training team trained nurses in assessment and treatment of the priority mental health disorders (psychosis, depression, AUD, epilepsy and common mental illnesses) using adapted mhGAP intervention guidelines. The PRIME team also facilitated a district supervision support programme to lower level health facilities that was carried out by the clinical and nursing officers. Support was also offered to improve the accuracy of the HMIS. At the community level, PRIME facilitated outreach programmes through village health teams (providing basic facts about the common mental health conditions in the area, symptoms, basic management and places of help), as well as the formation of carer and user support groups which were instrumental in reducing stigma in addition to reducing drop out of clinical attendances.

*HDI stands for Human Development Index [§]MH stands for mental health. Salient features of the countries summarized from Mugisha et al. Health systems context(s) for integrating mental health into primary health care in six Emerald countries: a situation analysis. Int J Ment Health Syst 2017; 11(1): 7.

Table 2: Participants interviewed per country

	Ethiopia	India	Nepal	Nigeria	South Africa	Uganda	Total
Provincial Managers	1	0	0	0	1	0	**2**
District managers	5	7	3	4	5	3	**27**
Facility managers	0	7	28	6	7	6	**54**
Service providers	6	7	4	0	18	3	**38**
Total	**12**	**21**	**35**	**10**	**31**	**12**	**121**

Figure 1: Systems implications of PRIME/mhGAP intervention efforts using the CFIR framework



Supplemental File 1: Consolidated Framework for Implementation Research constructs (27)

Construct		Short Description
I. INTERVENTION CHARACTERISTICS		
A	Intervention Source	Perceptions on whether the intervention is externally or internally developed.
B	Evidence Strength & Quality	Perceptions of evidence quality and validity that support the efficacy of the intervention.
C	Relative Advantage	Perceptions of the advantage of implementing the intervention versus an alternative.
D	Adaptability	Possibilities of intervention adaptation, tailoring, refinement or reinvention for local needs.
E	Trialability	Ability to conduct a small-scale test and possibly effect reversal (undo implementation) of the intervention, if warranted.
F	Complexity	Perceived difficulty of implementation in terms of duration, scope, radicalness, disruptiveness, centrality and intricacy.
G	Design Quality & Packaging	Perceived excellence in how the intervention is bundled, presented, and assembled.
H	Cost	Costs of the intervention and its implementation.
II. OUTER SETTING		
A	Patient Needs & Resources	The extent to which patient needs, and the barriers and facilitators to meeting those needs, are known and prioritised.
B	Cosmopolitanism	The degree of networking with other external organisations.
C	Peer Pressure	Pressure to implement an intervention driven by competition with other organisations.
D	External Policy & Incentives	External strategies to spread interventions, including policy and regulations, mandates, recommendations and guidelines.
III. INNER SETTING		
A	Structural Characteristics	Architecture, age, maturity, and size of an organisation.
B	Networks & Communications	Nature and quality of social networks, formal and informal communications within an organisation.
C	Culture	Norms, values, and basic assumptions of a given organisation. Clan culture focuses on internal maintenance with flexibility, concern for people, and sensitivity for customers. Hierarchy culture emphasises internal maintenance with a need for stability and control. Adhocracy culture concentrates on external positioning with a high degree of flexibility and individuality. Market culture stresses external maintenance with a need for stability and control.
D	Implementation Climate	Absorptive capacity for change, shared receptivity to an intervention, and expectations of reward and support.
1	Tension for Change	Perceptions that the current situation is intolerable or needing change.
2	Compatibility	Perceptions of fit between intervention and individual meaning and values and fit with existing workflows and systems.
3	Relative Priority	Shared perceptions of the importance of the intervention implementation.
4	Organisational Incentives & Rewards	Includes goal-sharing awards, performance reviews and raises in salary and less tangible incentives such as increased respect.

5	Goals and Feedback	Perceptions that goals are clearly communicated, acted upon, and fed back to staff, with feedback-goal alignment.
6	Learning Climate	Climate where a) leaders express their own shortcomings and need for team members' assistance; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation.
E	Readiness for Implementation	Organisational commitment to implement an intervention.
1	Leadership Engagement	Commitment, involvement, and accountability of leaders and managers to the implementation of the intervention.
2	Available Resources	Resources dedicated for implementation and on-going operations, including training, physical space and time.
3	Access to Knowledge & Information	Access to information and knowledge about the intervention and its incorporation into work tasks.
IV. CHARACTERISTICS OF INDIVIDUALS		
A	Knowledge & Beliefs about the Intervention	Attitudes toward the intervention and acquaintance with intervention facts, truths and principles.
B	Self-efficacy	Belief in own capabilities to perform actions to achieve implementation goals.
C	Individual Stage of Change	Characterisation of the phase an individual is in, progressing towards skilled, enthusiastic, and sustained intervention use.
D	Individual Identification with Organisation	Perceptions of the organisation and relationships and degree of commitment with that organisation.
E	Other Personal Attributes	Traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.
V. PROCESS		
A	Planning	Degree to which tasks for intervention implementation are developed in advance and the quality of these schemes.
B	Engaging	Attracting and involving key individuals in the implementation and use of the intervention.
1	Opinion Leaders	Individuals in an organisation with formal or informal influence on their colleagues regarding implementation of the intervention.
2	Formally Appointed Internal Implementation Leaders	Individuals from within the organisation who have been formally appointed with responsibility for implementing an intervention.
3	Champions	Individuals dedicated to support, market and overcome possible obstacles along the way.
4	External Change Agents	Individuals affiliated with an external entity who formally influence or facilitate intervention decisions.
C	Executing	Carrying out the implementation according to plan.
D	Reflecting & Evaluating	Feedback about the progress and quality of implementation along with regular individual and team debriefing.

Online Supplementary file 2

CROSS COUNTRY INTERVIEW SCHEDULE FOR POLICY MAKERS / DISTRICT LEVEL MANAGERS / PHC CO-ORDINATORS

1. AWARENESS OF THE IMPORTANCE OF MENTAL HEALTH AND REDUCED STIGMA

1.1. Do you think that implementation of the mental health care plans (MHCPs) for integrating mental health into general health care at the district level has improved overall health care?

a) Probe for possible gains/disadvantages of integration in relation to:
   - greater efficiency through improvement in holistic care
   - improved quality of communication with service users
   - improved service user satisfaction with care
   - improved health outcomes of service users
   - potential for longer consultations
   - Potential for greater burden on health care providers

1.2 Has the implementation of the MHCPs assisted to reduce psychiatric stigma by service providers and in the community?

a) Probe for whether the training itself has assisted to reduce psychiatric stigma by service providers and any specific anti-stigma programmes implemented as part of the MHCP and if so how useful they have been for reducing stigma
b) Probe for any specific anti-stigma programmes implemented as part of the MHCP at the community level and if so how useful they have been for reducing psychiatric stigma by community members.

2. HUMAN RESOURCE ISSUES

2.1. Who/what body is responsible for the co-ordination/oversight of the integration of mental health care?

Probe for whether and how well this co-ordination is functioning to achieve the following:

a) Ensuring the timely appointment of specialist staff
b) Ensuring ongoing training and supervision of primary care staff in mhGAP/PC101
c) Ensuring ongoing training and supervision of lay counsellors/community health worker level staff in adjunct psychosocial interventions
d) Adequately monitors the quality of services
   i) Ensuring reliable and timely supply of adequate medication
   ii) Ensuring the collection of mental health indicators
   iii) Ensuring tracing of defaulters

iv) Ensuring that there are awareness programmes to promote mental health literacy and reduce stigma
v) Ensuring adequate upward and downward referral pathways are adhered to

2.2. What have been the barriers/facilitating factors to having maximum coverage of staff trained in mhGAP/PC101 (e.g.,)

Probe for how the following affect coverage:

a) Staff turn-over. Has there been high staff turn-over? If so why? What measures were taken to improve retention of staff?
b) Sufficient posts. Have there been sufficient posts available at clinic level for optimal implementation of the MHCP. If not, was this a result of lack of budget or authority to create additional posts or some other reason?
c) Recruitment procedures. Have these procedures been efficient (e.g., how long has it taken to recruit and appoint new staff?). If not, what problems exist with recruitment procedures? What measures were taken to improve these procedures?
d) Training procedures. Were problems encountered in ensuring that new staff were timeously trained in mhGAP/PC101 and that refresher training was offered for staff. If yes, how were these problems addressed?

2.3. How helpful do you think that training and supervision of PHC providers in mhGAP/PC101 mental health guidelines has been for facilitating the implementation of integration?

a) Probe for possible gains of this training and supervision.
b) Probe for shortcomings of training and supervision in mhGAP/PC101 mental health guidelines.

2.4. What has been the experience (if relevant) for using lay/community health workers to help identify and/or provide psychosocial interventions within a task sharing approach?

Probe for the following:

a) Whether they are formally part of the health care system or not? If not, how this has impacted on retention and staff turn-over, morale (as a result of low remuneration/volunteer work, lack of clear role definition and career pathways). What measures did you put in place to address these issues?
b) Whether their role in mental health care (countries to insert specifics) is acknowledged and credited.

2.5. What has been the experience of using specialist staff to provide ongoing/refresher training, supervision, support and a referral service for more complex/treatment resistant cases, which is necessary to support a task sharing approach?

Probe for:

a) Have they been sufficient specialists to assist with task sharing? Were the health authorities in the district willing for specialist staff to expand their roles and functions to assist in provide training, supervision and support to non-specialist staff in mental health care? If not how was this problem addressed?
b) Attitudes of specialist staff towards task sharing. Were specialist staff supportive of diversifying their roles to provide training, supervision and support to non-specialist staff in mental health care?
c) Staff turn-over. Has there been high staff turn-over of specialist staff? If so, why? What measures were taken to improve retention of specialist staff?
d) Recruitment procedures. Are these procedures efficient (e.g., how long does it take to recruit and appoint new staff?). If not, what problems exist with recruitment procedures? What measures can be taken to improve these procedures?
e) Training procedures. Are there procedures in place that would ensure that new specialist staff are timeously trained in mhGAP/PC101 so that they can provide supervision and support. If not, how has this problem been addressed?

3. EQUIPMENT AND INFRASTRUCTURE FOR MHC

3.1. Is the supply of drugs/medications at the district health facilities adequate?

If not, probe for how the following may affect drug supply

a) Drug policies. How have these impacted on availability of drugs? Are psychotropic medications part of an essential drug list? Are these drugs made available free of charge to patients? What measures have been put in place to improve drug policies?
b) Supply systems. How are drugs distributed to PHC clinics? What are the problems with the supply system? Are there buffer supplies/emergency stocks? What measures have been put in place to address these problems?

1.2. Have there been any problems in the supply of guidelines (mhGAP/PC101) and adjunct psychosocial manuals as well as their retention at the clinics? Probe for reasons for problems and procedures that have been put into place to overcome them.

3.3. If the MHCP includes high intensity counselling delivered by trained counsellors, is there adequate counselling space available at the PHC clinics? If not, probe how this problem was addressed.

4. INFORMATION

4.1. What information systems interventions have been used for monitoring and evaluation of integrated mental health care at the district level?

Probe for :

a) Mental health indicators used
b) Inclusion of mental disorders on patient record sheets
c) Establishment of targets for screening for mental disorders
d) Problems in implementation and data capturing

5. SYSTEMS FOR PLANNING AND MANAGEMENT

5.1. What systems strengthening interventions (e.g., strengthening of referral systems, tracing of defaulters – see probes below) have been introduced to strengthen the case management of chronic patients including those with mental disorders

Probe for:

a) Systems strengthening to trace defaulters
b) Systems to promote collaboration between health workers and counsellors (if present)
c) Systems to promote joint case discussions
d) Systems strengthening to improve upward and downward referrals within the collaborative stepped care model
e) Whether any of these systems strengthening interventions have helped improve overall mental health care

5.2. Have any programmes been introduced to address/promote more patient-centred care which includes patient empowerment to promote more patient self-management necessary for chronic patients including those with mental illness?

Probe:

a) Ask about the content of these interventions
b) Whether they helpful/unhelpful and why.

5.3. Have any programmes been introduced to support PHC providers with their own emotional problems e.g. debriefing programmes/employee assistance programmes

Probe:

a) Ask about the content of these interventions
b) Whether they are helpful/unhelpful and why.

5.4. How do systems for planning & management operate and how will this affect future scale up of the PRIME MHCPs (Nigeria to include equivalent)?

Probe for:

a) Whether they are centralized/decentralized and how this particular system in the country may help or impede the scale up of the PRIME MHCPs (Nigeria to add equivalent) beyond the lifespan of PRIME.

b) Whether the budget for mental health at provincial/district level is ring-fenced or part of an integrated budget for ring fenced at district level and how this particular system in the country may help or impede the scale up of the PRIME MHCPs (Nigeria to add equivalent) beyond the lifespan of PRIME.
c) Particular elements that will be difficult to scale up (e,g., the use of lay counsellors in South Africa) and actions taken to address these difficulties.

5.5. Given that mental health care is a multi-sectoral endeavour, how has the DoH at district level collaborated with other sectors to tackle mental health problems and its determinants?

Probe for
a) Mechanisms/structures that were put in place to facilitate this.
b) Problems encountered.

6. SERVICE USER PARTICIPATION

6.1. What has been the extent of service user/caregiver participation in the planning and delivery of mental health services?

6.2. How has this involvement improved how mental health care is implemented in your district through the PRIME project [Nigeria equivalent]?

Probe for:

a) How patients and caregivers have contributed to making the service development / implementation a success?
b) How patients and caregivers have been involved in monitoring quality / improving services?

7. CAPACITY BUILDING

7.1. We have been discussing many aspects of health system strengthening, especially focusing on mental health systems. Have you had any training in health systems strengthening that has assisted you to strengthen the system to support integrated care?

Probe for:
a) Training received
b) How it has been helpful
c) Further training needs

7.2. Then probe with the following for the capacity-building priorities within their organisation [may be better if the respondent is given the paper and asked to complete as difficult to visualise]

PRIORITIES FOR CAPACITY-BUILDING

	How important is it for your institution to build capacity in each of the following areas? 1 = irrelevant 2 = not a priority now 3 = important but not a priority 4 = a priority need 5 = an essential need				
	1	2	3	4	5
Mental health policy, planning and programme development					
Mental health policy development or policy review and re-formulation					
Evidence-based mental health care planning					
Mental health programme development					
Planning for a system of mental health in primary care					
Developing partnerships with patients for policy-making and service development					
Human resources projection and cost calculation					
Mental health systems					
Governance of mental health systems					
Mental health system leadership					
Mental health information systems					
Mental health system communication					
Mental health system advocacy strategies					
Mental health service implementation					

Training for mental health workforce					
Antistigma campaigns					
Monitoring and evaluation of mental health services					
Developing partnerships with patients to involve in quality control					
Implementation of mental health services in post-conflict settings					
Community-based approaches to mental health care					
Mental health research					
Priority setting in mental health systems research					
Conducting mental health needs assessments					

Supplemental File 3: Main findings according to CFIR constructs

Construct		Obstacles	Synergies	Implications
I. INTERVENTION CHARACTERISTICS				
A	Intervention Source		PRIME intervention packages were designed, developed and implemented by the research team in concert and close collaboration with the ministries of health in Ethiopia, India, Nepal, South Africa and Uganda. In Nigeria, researchers from the consortium worked closely with local stakeholders to contextualise and implement an mhGAP intervention.	Across all country sites, close collaboration between the research team and local stakeholders during all implementation phases should result into stronger sustainability and stakeholder empowerment.
B	Evidence Strength & Quality		Country stakeholders were provided with PRIME and mhGAP materials and were informed of the evidence base of the materials.	In all country sites, stakeholder knowledge of evidence base for the intervention packages heightened belief in implementation success.
C	Relative Advantage	Instances emerged where intervention advantages were hamstrung by persisting health system challenges, for instance recurring supply chain management breaks resulting in a lack of psychotropic medications at facilities in Nigeria and Uganda.	In Ethiopia and India, expanding services to lower tier facilities were perceived to increase mental health awareness, improve diagnostics and decrease the financial burden of service access by mental health service users (MHSUs). In Nepal and Nigeria, stigmatising perceptions among health workers were largely improved following the introduction of PRIME and mhGAP packages, respectively. In Uganda, the PRIME package was seen to improve access to care in rural areas. In South Africa bolstering the mental health components of the Adult Primary Care (APC) manual in South Africa was perceived to substantially improve mental health case detection, management and referral.	Country intervention packages were appropriately tailored for the six respective contexts, though health system deficiencies hindered implementation at service provider level. The interventions also helped to identify and highlight system faults for overall improvement.
D	Adaptability	High staff turnover called for re-training of new incoming staff across some of the countries, particularly Nigeria and South Africa. In all country sites, concern was expressed regarding human resources shortages to implement the packages.	PRIME intervention packages were successfully adapted in Ethiopia, India, Nepal, South Africa and Uganda, and a contextualised mhGAP package was successfully trialled in Nigeria.	Funding and capacitation of existing specialists to provide re-training required to ensure follow-up training of new staff in all countries.

E	Trialability		The PRIME and Nigerian packages have been assessed through randomized controlled trials – with results pending	
F	Complexity	Where the PRIME intervention packages involved collaborative care models, the level of complexity was greater. For example, in South Africa, referrals to psychologists were problematic, in that booking information was given to the external psychologist who in turn had to contact the patient; leaving the referring health worker unsure if the consultation took place and with little feedback. Similarly, no feedback was given after referrals to hospital-based social workers.	In South Africa, the APC manual was seen to be a vital tool to help navigate the complexities of integrated mental health care, and the referral/booking system between facilities and general practitioners were positively appraised. There was general support from all country sites that the intervention packages made the provisioning of integrated mental health care more simple and manageable, despite resource constraints.	Continuous quality improvement to identify problems in the implementation of the intervention package such as referral feedback bottlenecks could assist in the implementation of complex collaborative care packages, such as in South Africa
G	Design Quality & Packaging	In Nepal, it was mentioned that it would have been preferable if the intervention package had included anxiety given the high prevalence of anxiety disorders In South Africa, some participants indicated the need to have the package include substance use disorders more broadly than just the narrow focus on alcohol use disorders.	Participants from all countries assessed the intervention guidelines positively. For example, in Nigeria, it was mentioned that while mental health services were already part of its PHC package, using the mhGAP guidelines lent more structure and efficiency to mental health service provision. In South Africa, the intervention package was perceived to work well in concert with the roll-out of Integrated Clinical Services Management (ICDM). In India, using PHC-level health facilities assisted in building and maintaining relationships with MHSU, especially in rural areas.	There is a need for the integrated package to be more inclusive of other mental disorders as well. Other initiatives to develop integrated chronic service delivery processes are enabling of integrated mental health care
H	Cost	In Nepal, it was mentioned that a degree of dependency had developed on the resources from Transcultural Psychosocial Organization Nepal (TPO) and PRIME, especially human resources, potentially constraining the ability of the Nepal government to continue the programme in the same dosage. Similar sentiments were expressed in Uganda and in India. In Nigeria, local government did not provide adequate supplies of psychotropic medications, relying on external funding, which highlights sustainability issues.	In Ethiopia, the introduction of health insurance helped to foster access to care. Inclusion of psychotropic medication on the essential drug list in Nepal was a major advance in optimizing future sustainability of the integrated mental health package.	System deficiencies need to be addressed, specifically dedicated mental health funding for sustaining the integrated mental health package. PRIME and other similar integrated mental health care intervention programmes should withdraw from the respective countries gradually, with on-going technical support and mentorship of existing human resources important to sustain the integrated packages.
II. OUTER SETTING				

A	Patient Needs & Resources	The lack of community-based and family support was highlighted. Stigma, both in communities and in health facilities, was widely perceived to be a substantial barrier to integrated mental health care and was mentioned to be a challenge despite featuring in some of the intervention packages. In some country sites, for example, Nepal and Nigeria, drug stock-outs resulted in MHSUs' needs not being met, both clinically and in terms of buying into mental health care. In South Africa, MHSUs' were perceived to expect quick services, which is not always possible given resource constraints. In Uganda, it was mentioned that people suffering from alcohol use disorders were resistant to help-seeking and rarely turned up at facilities.	The intervention packages were perceived to alleviate patient concerns related to finances and time. In Ethiopia, India and South Africa, the PRIME intervention packages were perceived to bring mental health services closer to MHSUs. Across all countries, the multiple health conditions experienced by MHSUs seeking mental health care was mentioned, and it was indicated that the intervention packages were especially helpful in meeting these MHSUs' needs. A participant from Ethiopia underlined the intertwined nature of mental health, economic and social challenges - that it can only be approached in an integrated collaborative way.	Renewed efforts to raise mental health literacy and combat stigma are required, especially in communities. Supply chain management should be strengthened so as to prevent stock-outs, especially in Nepal and Nigeria. Alcohol use disorders might require extra efforts to establish relationships of care between MHSUs and facilities.
B	Cosmopolitanism	While most participants underlined the primacy of multi-sectoral working, very little evidence emerged of planning, implementing and monitoring services across sectoral boundaries.	In Nepal, TPO used a strong relationship with government to lobby for mental health service scale-up and to assist in health system strengthening by providing training and human resource support. In South Africa, there was engagement with mental health societies that are NGOs linked to the Federation for Mental Health that represents user interests.	Local governance structures should be strengthened across all countries by establishing accountability measures for regular multi-sectoral mental health forums, including engaging with user groups.
C	Peer Pressure			
D	External Policy & Incentives	In Uganda, poor supply chain management policies resulted in psychotropic drug shortages. A moratorium on appointing health workers in the South African site resulted in staff shortages generally that impeded staffing for integrated mental health care. At the time of writing, none of the countries had instituted a ring-fenced, dedicated mental health budget. Persistent common health system challenges were mentioned in all countries, especially a lack of governance and management capacity for implementing integrated mental health care, a lack of funding and staffing for mental health specialists to support task sharing and as a referral resource, and little inclusion of mental health in health information systems.	The introduction of health insurance in Ethiopia helped to increase access to mental health care. South Africa's roll out of ICSM provided many synergies with integrated mental health care. In Nepal, inclusion of psychotropic medications on the free essential drug list helped improve access to treatment. CHW programmes provided a platform for the introduction of task-sharing in PHC facilities. Free PHC was a significant facilitator for intervention implementation and future scale-up across all the countries.	Policy changes leading to strengthening of the health system generally, such as introduction of health insurance, essential drug lists including psychotropic medication, and service delivery redesign for integrated chronic care management all provided a more enabling PHC platform for the integration of mental health. The need for a dedicated mental health budget at PHC level, however, still remained essential to ensure adequate human resources for mental health and to withstand external socioeconomic pressures, where mental health resources

				allocated from a general PHC budget were vulnerable to being used for other health priorities across all countries.
III. INNER SETTING				
A	Structural Characteristics	Although not a feature across all health facilities in the respective intervention sites, the lack of adequate private space for counselling was problematic.	Some participants appropriated rooms intended for different programmes for mental health counselling, for instance dental rooms, toilets or administrative offices in South Africa.	Facility managers from all country sites should be empowered in creative space management, to create mental health counselling spaces that provide an appropriate degree of privacy and confidentiality.
B	Networks & Communications	As previously mentioned poor feedback loops between primary and secondary care, hampered continuity of care in South Africa. Receiving feedback from district and provincial management regarding complaints, suggestions and performance were also largely absent in South Africa. In Uganda, a lack of routine discussions on the clinical aspects of mental health care was highlighted, and regular meetings were suggested to remedy this.	Networks between providers within PHC were perceived to be strong, for instance relationships between nurses and CHWs, as well as between nurses and doctors in South Africa; relationships between prescribers and non-prescribers in Nepal; inter-staff relationships and communication following mhGAP training in Nigeria. The hierarchical structure of communication ensured strong upward lines of communication from health facilities to local and provincial government management levels, as well as with drug dispensaries. Difficulties in following up on MHSUs who missed their appointments were addressed through strong relationships between health workers and MHSUs' families, particularly in Nepal and Nigeria, where close contact was kept telephonically with MHSUs.	Feedback loops between primary and secondary care need to be strengthened in referral and communication systems, particularly in South Africa, while regular clinical discussions among staff could be fostered in Ugandan health facilities. The promise of mhealth technologies to catalyse these processes should be investigated further.
C	Culture	Hierarchical values did not always ensure a required degree of flexibility in the face of challenges, for instance dealing with drug shortages in Nigeria and in South Africa; with affected health facilities waiting on upper government levels to solve the shortage. A lack of clan culture was exhibited in South Africa, highlighted by an absence of occupational support for PHC clinic staff, with employee assistance programmes seen as punitive rather than supportive.	Hierarchical cultural values were predominant in all countries, in line with the tiered nature of health systems in LMICs. This was exemplified by cascaded training (especially in India and Nigeria), drug dispensing (all countries), levels of governance in (Nepal, Nigeria, South Africa, Uganda), staffing and funding (Nigeria, South Africa and Uganda). Clan cultural values emerged in Nepal, where regular staff meetings	In some country contexts, there needs to be a shift from bureaucratic transactional leadership styles to more transformative ones, to foster more flexibility in organisational culture in dealing with challenges. A stronger clan-based culture can help alleviate occupational stress related to mental health service provision in South Africa.

			were made non-compulsorily, increasing flexibility and participation among all staff cadres. While work-related emotional challenges were also mentioned in Nigeria, a nurturing clan work environment was sketched where staff could share their emotional burdens with co-workers and line managers. Here, decision-making regarding MHSUs was also presented as a group effort, enhancing shared responsibility and buy-in.	
D	Implementation Climate			
1	Tension for Change	In some countries, like South Africa, several interventions of different scale and scope were being rolled out simultaneously, with various degrees of control and quality. Although there was a recognition of the need for change, this was reported to have been done without sufficient consultation with staff and was at times overwhelming for staff.	Participants from all countries understood the need for integration of mental health to improve access, reduce stigma and alleviate the mental health burden in communities.	Given the on-going health system reforms in the six target countries, it is important to adapt integrated models of mental health care to existing systems. The influence of broader health system challenges and degree of readiness of the health system for integration should also be considered in the timing of future scale-up efforts.
2	Compatibility	Given the chronic nature of mental disorders and the instability of drug prices and availability, the long-term ability of MHSUs to adhere to psychopharmacological treatment was questioned in Ethiopia. In Nepal, Nigeria and Uganda, drug stock-outs were also a concern. In Nepal, long-term compatibility was a concern, given the central role of TPO in its health system.	Integrated mental health care benefited from established health system features, for instance the regular provision of health information to MHSUs in Nepal, and the strong use of CHWs in South Africa and Nigeria. Also, in South Africa, the Integrated Chronic Disease Management programme provided an enabling platform for integration of mental health care. Most country health workers had received at least basic mental health care training prior to the intervention. All country health systems had in place referral systems to specialised services.	In all countries, strategic use of specialist resources should be fostered, and supply chain management strengthened, supported by a dedicated mental health budget. Implementation of chronic care systems provides an enabling platform for integration as highlighted in South Africa.
3	Relative Priority	Some instances emerged that mental health is not adequately prioritised compared to other health programmes, for instance in South Africa, where a lack of district-level mental health coordinators was noted. This was further supported by the lack of dedicated mental health funding across all country sites.	There was general consensus among participants in all countries regarding the importance and necessity of integrated mental health care as an intervention.	All countries should have dedicated mental health budgets and local governance structures in place.

4	Organisational Incentives & Rewards	In Nepal and Uganda, some health workers were portrayed as participating in training for self-promotion rather than truly buying into the broader programme. Individual ambitions led to staff moving to other areas of the country health systems, promoting higher staff turn-over.	The training and specialist support from PRIME facilitators in India and in Nepal was a particularly important incentive to programme implementation. In Ethiopia, integrated care helped health workers to achieve their goal in providing human rights-based care. In South Africa, guideline documents made day-to-day patient management easier and promoted better patient flow in health facilities, while being simple enough for all health worker cadres to understand and follow. Having referral pathways to facility-based counsellors also improved motivation to identify and refer patients with common mental disorders.	The balance between individual and programme ambitions requires careful consideration, particularly in Nepal and Uganda.
5	Goals and Feedback	In line with the hierarchical structure of the country health systems, mental health information was sent (mostly monthly) to a centralised facility, though very little feedback was provided to health facilities, particularly in Ethiopia, Nigeria and South Africa.	Voluntary staff meetings in Nepal health facilities were a primer for goal communication and feedback, as were monthly compulsory meetings in Nigeria.	Local governance structures need to be strengthened to provide regular and structured programme feedback to health facilities, across all countries. Continuous quality improvement that promotes the use of data at a local level to improve services provides a potential mechanism to address the current lack of feedback and would also help incentivize implementation of integrated mental health care
6	Learning Climate		Across all countries, facility managers were appreciative of the utility of the guidelines document to assist them in good clinical decision-making. PRIME and mhGAP training was positively assessed, and many were willing to undergo additional training. This was especially mentioned in India, where regular training and support from PRIME was requested. In South Africa, learning about integrated mental health care streamlined well with training in Integrated Chronic Disease Management.	The learning climate across all sites was generally positive, possibly due to on-going health reforms and service adjustments in these health systems.
E	Readiness for Implementation			

1	Leadership Engagement	In many countries, leadership on local/district level was lacking; in Nepal, there was a lack of "direct" supervision, most supervision occurred telephonically. In South Africa, Nigeria and Uganda, it was mentioned that attempts to engage upper levels of government regarding resource shortages were met by indifference. In these countries, there was "paper-based" leadership (relying on the provision of policies and plans) with little physical presence in health facilities. In Nigeria, it was mentioned that upper government levels lacked awareness of the mhGAP programme.	Across all countries, the ministries of health were instrumental bodies in facilitating implementation processes, according to hierarchical levels of responsibility.	Facility managers from all sites should be empowered to provide transformative leadership in the face of challenges such as human resource constraints and drug stock-outs. Local levels of mental health governance should be improved, along with fostering better communication and feedback with health facilities.
2	Available Resources	Participants across all country sites highlighted resources shortages, including general as well as specialist human resources for mental health, supplies of psychotropic medications, and funding constraints. Staff turnover was a particular obstacle to integration, since in several sites replacement staff were not well informed about the intervention packages.	CHWs were perceived to be a lynchpin to integrated mental health care in Nepal, Nigeria and South Africa, although in Uganda they were mentioned to be more established in HIV programmes.	A ring-fenced, dedicated mental health budget emerged as a crucial mechanism with which to ensure a stable flow of resources towards mental health care across all country sites.
3	Access to Knowledge & Information		While country participants were not comprehensively informed of the broader implementation processes of PRIME and mhGAP, they were closely involved in the intervention development and implementation processes in the respective countries.	Strong ties between implementers and country partners ensured that stakeholders had a good degree of access to knowledge and information.
IV. CHARACTERISTICS OF INDIVIDUALS				
A	Knowledge & Beliefs about the Intervention	Across all country contexts, there were mixed views on task sharing, with some respondents viewing caring for people with mental illness as the role of mental health specialists, even after training, with others viewing it as an additional burden.	In Ethiopia, integrated mental health care reduced personal costs of MHSUs by eliminating the need to travel great distances to hospitals for care, while in South Africa, it was mentioned that integrated mental health care helped to promote more person-centred care.	The need for change management to orientate managers and providers to the benefits of integrated care for MHSUs and providers alike is highlighted.
B	Self-efficacy		In general, participants reported to be more assured in effectively dealing with mental disorders in PHC settings following PRIME and mhGAP interventions.	Across all countries, the interventions reportedly improved stake holders' self-efficacy in providing integrated mental health care.
C	Individual Stage of Change		While there was a general sense that stakeholders' self-efficacy, confidence and capabilities improved	On-going refresher training and support is important, particularly for

			in providing integrated mental health care, some participants, for instance in South Africa, Nepal and Nigeria, recommended regular refresher training and supervision by the research teams.	South Africa, Nepal and Nigeria.
D	Individual Identification with Organisation		All country stakeholders were firmly embedded in their respective ministries of health.	In general, stakeholder identification with the values of health departments were largely aligned.
E	Other Personal Attributes	In all countries, participants suggested that some health workers exhibited stigmatising attitudes and discriminatory behaviours towards people suffering from mental disorders. Some participants from South Africa positioned PHC as being largely curative focused, neglecting its preventative role in the health system. In Uganda, cultural understandings of mental disorders in some cases led to misdiagnosis and mismanagement	In Nepal, facility managers played a mediating role between professional and non-professional staff, as well as between facility staff and MHSUs.	There is a persisting need for on-going health worker awareness programmes to reduce psychiatric stigma across all country sites.
V. PROCESS				
A	Planning		Interventions across country sites were planned in close consultation with health ministry stakeholders from national down to local levels of governance.	Close collaboration with key stakeholders assisted in contextualised implementation of intervention packages in the six country sites.
B	Engaging			
1	Opinion Leaders	In Nigeria, during drug stock-outs, it was highlighted that MHSUs sought alternative health services, including traditional medicine, which in some cases aggravated symptoms. This presents an identified need to engage better with traditional medicine practitioners and community leaders.		Further engagement with traditional healers, influential community leaders and opinion leaders situated outside the public health system should be considered, particularly in Nigeria.
2	Formally Appointed Internal Implementation Leaders		The emphasis on facility managers was important. Given the hierarchical nature of the health sector, facility managers tended to wield a substantial amount of influence over frontline workers.	Facility managers emerged as crucial stakeholders in the success of integrated mental health care across the six countries, requiring on-going support given broader health system constraints.
3	Champions			
4	External Change Agents		In Ethiopia, India, Nepal, South Africa and Uganda, the PRIME research team was instrumental in driving the intervention development and implementation processes. In Nigeria, the EMERALD team, and in Nepal, TPO, were also key	

			external change agents. An NGO hospital in Ethiopia was also instrumental in supporting integrated mental health care.	
C	Executing	Broader system dynamics influenced the implementation processes in some cases, for instance psychotropic drug stock-outs in Nigeria, Nepal and Uganda, and a moratorium on the appointment of health workers in South Africa. A slow government response in terms of instituting local mental health governance structures, promoting multi-sectoral strategizing and creating dedicated mental health budgets further dented optimal implementation of intervention packages in the respective countries.	Very little negative sentiments were expressed in terms of implementation fidelity, outputs, outcomes and experiences, across all countries.	Broader system influences are a real and important consideration in the implementation of health system interventions in the real-world contexts of the countries, raising the importance of on-going stakeholder consultation, empowerment of key staff members to engage with changing conditions and emerging challenges, and intervention flexibility that characterises continuous quality improvement
D	Reflecting & Evaluating	Some participants from Ethiopia and South Africa indicated that integrated mental health care should attract more MHSUs to the health system, which will in turn require more resource mobilisation by governments.	The implementation of PRIME and mhGAP intervention packages were positively assessed across all country sites, including in terms of reducing mental health stigma, promoting more person-centred care, increasing the quality of care, improving mental health priority, reducing MHSU costs when seeking care, and improving mental health confidence and capabilities of health workers.	The sustainability and long-term success of integrated mental health care across countries will be significantly reliant on dedicated mental health budgets and local governance structures to guide and promote mental health services in PHC settings.